

**Gulfo - Calculation of Sediment Preliminary Screening Values Protective of Human Health (fish ingestion)**

Target Risk Level:	1.0E-06	NCP, multiple chemicals & pathways
Body Weight (kg):	70	
Target Hazard Quotient:	1	
Ingestion Rate (kg/day):	0.03	(Texas Dept. of Health)
Exposure Frequency (days/year):	350	
Exposure Duration (years):	30	
Averaging Time (carcinogen) (days):	2.56E+04	(365 days times 70 years)
Averaging Time (non-carcinogen) (days):	1.10E+04	(365 days times 30 years)
Fraction of Organic Carbon in Sediment:	1.00E-02	State Marine Site measurements
Fraction of Lipids in Fish & Crab:	7.00E-02	EPA Region 6 Guidance on lipids & fish (EPA, 1998)
BSAF: biota-sediment accumulation factors, chemical specific (unitless)		

RBEL for carcinogens (mg/kg): (RL x BW x ATc) / (Sf0 x IF x EF x ED)  
 RBEL for non-carcinogens (mg/kg): (HQ X BW X RFD0 X ATnc) / (IR X EF X ED)

Screening Value (organics): (RBEL X OCsed) / (Lipid x BSAF)  
 Screening Value (metals): (RBEL) / (BSAF)

Compound	a	b	c	d	e	f	g	h	
		Maximum Site Sediment Concentration (mg/kg)	Detected Background Sediment Concentration <sup>1</sup> (mg/kg)	Chemical Hazard Index for Site Releases	Sediment Screening Value (mg/kg)	Cancer Slope Factor Oral (mg/kg-day)	Reference Dose Oral (mg/kg-day)	BSAF (unitless)	Is Fish/Crab Analysis Required?
antimony		8.14E+00	7.33E+00	2.41	3.37E+00		4.00E-04	2.90E-01	Yes - concentration exceeds screen & background
arsenic		7.62E+00	9.62E+00	na-below background	2.34E-02	1.50E+00	3.00E-04	1.62E-01	No - below background
beryllium		8.20E-01	1.32E+00	na-below background	2.57E+01		2.00E-03	1.90E-01	No - below background
chromium		1.44E+01	2.25E+01	na-below background	1.75E+05		1.50E+00	2.10E-02	No - below background
copper		1.26E+01	1.68E+01	na-below background	9.78E+01		4.00E-02	1.00E+00	No - below background
lead <sup>2</sup>		3.23E+01	1.45E+01	256.6	8.02E-02	8.50E-03	4.30E-04	8.35E+00	Yes - concentration exceeds screen & background
mercury		3.60E-02	3.00E-02	0.55	6.51E-02		8.60E-05	3.23E+00	No - concentration below screen
nickel		1.67E+01	2.73E+01	na-below background	9.05E+02		2.00E-02	5.40E-02	No - below background
silver		5.40E-01	0	48.6	1.11E-02		5.00E-03	1.10E+03	Yes - concentration exceeds screen & background
zinc		9.26E+01	5.41E+01	0.14	6.43E+02		3.00E-01	1.14E+00	No - concentration below screen
chlordan, gamma		8.30E-04	0	0.00	0.001*	3.50E-01	5.00E-01	4.25E+01	No - concentration below screen
4,4 DDE		5.41E-04	0	na-carcinogen	3.34E-05	3.40E-01		7.16E+01	Yes - concentration exceeds screen & background
4,4 DDT		3.32E-03	5.70E-04	0.01	4.12E-03	3.40E-01		5.80E-01	No - concentration below screen
acenaphthene		7.22E-02	0	0.00	4.23E+01		6.00E-02	4.95E-01	No - concentration below screen
anthracene		1.07E-01	0	0.00	1.25E+03		3.00E-01	8.40E-02	No - concentration below screen
benzo(a)pyrene		6.34E-01	0	na-carcinogen	1.69E-04	7.30E+00		6.60E-01	Yes - concentration exceeds screen & background
benzo(a)anthracene		5.41E-01	0	na-carcinogen	1.68E-03	7.31E-01		6.60E-01	Yes - concentration exceeds screen & background
benzo(b)fluoranthene		6.11E-01	3.69E-02	na-carcinogen	1.69E-03	7.30E-01		6.60E-01	Yes - concentration exceeds screen & background
benzo(g,h)perylene		5.09E-01	0	0.03	1.59E+01		3.00E-02	6.60E-01	No - concentration below screen
benzo(k)fluoranthene		5.66E-01	0	na-carcinogen	1.69E-02	7.30E-02		6.60E-01	Yes - concentration exceeds screen & background
chrysene		6.53E-01	0	na-carcinogen	1.69E-01	7.30E-03		6.60E-01	Yes - concentration exceeds screen & background
dibenzo(a,h)anthracene		2.35E-01	0	na-carcinogen	1.69E-04	7.30E+00		6.60E-01	Yes - concentration exceeds screen & background
fluoranthene		9.08E-01	0	0.04	2.12E+01		4.00E-02	6.60E-01	No - concentration below screen
fluorene		6.77E-02	0	0.00	2.82E+01		4.00E-02	4.95E-01	No - concentration below screen
hexachlorobenzene		3.19E-02	0	0.08	7.70E-04	1.60E+00		8.00E-04	Yes - concentration exceeds screen & background
indeno(1,2,3-cd)pyrene		7.70E-01	0	na-carcinogen	1.69E-03	7.30E-01		6.60E-01	Yes - concentration exceeds screen & background
methyl naphthalene, 2-		2.89E-02	0	0.10	3.00E-01		4.00E-03	4.65E+00	No - concentration below screen
phenanthrene		6.91E-01	0	0.03	2.12E+01		3.00E-02	4.95E-01	No - concentration below screen
pyrene		1.01E+00	0	0.06	1.59E+01		3.00E-02	6.60E-01	No - concentration below screen
			Total HQ =	309					

<sup>1</sup> A background sample concentration of 0 indicates that the chemical was not detected  
<sup>2</sup> Lead slope factor and reference dose from "Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities"; Final (EPA, 9/2005); used for screening only  
 \* Sediment screening level is calculated from the US FDA Action Level (Sec 575.100) of 0.3 ppm chlordan in fish (edible portion) instead of RBEL